

INFORMATION PROCESSING APPARATUS AND METHOD,  
MEMORY MEDIUM STORING COMPUTER-READABLE  
PROGRAM THEREIN, AND PRINT CONTROL PROGRAM

5 BACKGROUND OF THE INVENTION

Field of the Invention

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The invention relates to an information processing  
apparatus which can communicate with an external print  
management apparatus via the Internet, a control method  
10 for such an apparatus, a memory medium in which a  
computer-readable program has been stored, and a  
control program for such a control method. More  
particularly, the invention relates to a process for  
transmitting a print order from an information  
15 processing apparatus to a print management apparatus  
via the Internet.

Related Background Art

Fig. 2 is a system constructional diagram in a  
print system for realizing a conventional print service  
20 of the Internet. A client PC (Personal Computer) 200  
is connected to the Internet by using a dial-up system  
or a normally connecting system. Via a provider or the  
like, the client PC 200 communicates with a center  
server 202 which provides the print service. The  
25 center server 202 has a print controller 203 and  
receives a print order (print order information) from a  
client. Via the Internet, the center server 202 is

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further connected to one or more shops 204 as print shops for performing an actual print output so that it can communicate therewith. Since the shop 204 is often the same affiliated shop as that of the center server 202, it is connected to the center server by a dedicated line. Therefore, the print controller 203 of the center server 202 actively issues the print order to the shop. At least one printer 205 for executing a printing process of high quality in color is usually provided for the shop 204 as a print shop.

A dedicated application 210 for receiving the print service has been installed in the client PC 200, and print data 201 as a print order is formed by the dedicated application 210. Generally, the print data has been described in a script format in order to receive the print service. For example, a shop name as a print shop which print-outputs the print data, a type name of the printer, a paper size, a designation of a type of recording paper (media type), an image (format with which the print service copes: that is, JPEG, GIF, or a bit map), a range of the image, and edit information for the image (a designation of an image process for the image, a designation of clipping, etc.) has been described. However, according to the conventional print service, the print order requests the center server to print as mentioned above, and a dedicated application is necessary for forming the

print order.

In the client PC 200, in order to request the printing of the print data 201 as a print order formed by the dedicated application 210, the dedicated application 210 has a mechanism such that the activation of a browser 211 is promoted via an OS (Operating System) of the client PC 200, a browser for viewing via the Internet is activated and connected to the Internet, and a URL of the center server 202 is designated, thereby communicating with the center server 202. Via the browser 211, the client PC 200 requests the center server 202 to print the print order. All of the lists of the shops to which the print can be ordered are downloaded upon communication and a desired list can be designated at the time of the next print order.

The print controller 203 of the center server 202 selects the shop 204 in which the print data should be printed and outputted on the basis of the print order (print data 201) as a print request received from the browser 210 of the client PC 200, and transmits the print order to the corresponding shop.

However, when a print service is received via the conventional Internet, since all of lists of shops which are provided from a center server are downloaded by using a Web browser or the like at the time of ordering the printing, it takes a long time to access

the Internet upon print ordering and there are problems regarding a burden on the user which is caused in communication costs (telephone charge, provider charge), a communication load of the Internet, and the like. Since information about a region of a shop to which the user wants to order the printing, print contents, and shops in which a possibility of issuing the print order is low has to be held in a client PC, there is also a problem such that using efficiency of a memory is low because wasteful data is held.

A case where only the information of a certain specific shop is managed by the client PC will now be considered. For example, in case of forming a print order and ordering the printing, in the designated shop, a situation such that a printing process which the user desires cannot be performed, for example, a paper size, resolution, a kind (toner, ink) of material of recording expendable supplies, finishing, or the like cannot be designated, so that the print order has to be retried is considered.

As mentioned above, the print service that is provided via the conventional Internet has a fear such that although the method of downloading all of the shops causes an increase in burden on the user, if only the specific shop is downloaded, the using efficiency of the user deteriorates.

## SUMMARY OF THE INVENTION

In consideration of the foregoing problems,  
therefore, it is an object of the invention to provide  
a mechanism of realizing a shop selection of high using  
5 efficiency by downloading a first candidate for adapted  
shop information to a client on the basis of using  
conditions which are inputted by the user.

Another object of the invention is to provide  
information processing apparatus and method for  
10 obtaining a first candidate for shop information from a  
center server in accordance with using conditions and  
selecting a second candidate for adapted shop  
information from the obtained shop information on the  
basis of printing conditions set by a printer driver,  
15 and to provide a shop selecting program for such an  
information processing method.

To accomplish the above objects, according to the  
first invention of the present invention, there is  
provided an information processing method in an  
20 information processing apparatus which can communicate  
with a print management apparatus via the Internet,  
comprising: a using condition transmitting step of  
transmitting using conditions which are inputted to the  
print management apparatus via the Internet; a shop  
25 information obtaining step of obtaining shop  
information of a first candidate from the print  
management apparatus in accordance with the using

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conditions; a screen information forming step of forming input screen information for promoting selection of a shop which is allowed to print and output a print order from the shop information of the first candidate; and a print order transmitting step of transmitting the print order including designation of the selected shop to the print management apparatus via the Internet.

In the screen information forming step, shop information of a second candidate corresponding to the shop which can perform a printing process is specified from the shop information of the first candidate on the basis of a print setting of the print order which is inputted, and the input screen information is formed in consideration of the shop information of the second candidate.

In the screen information forming step, the input screen information is formed so as to display the shop of the shop information of the second candidate so that it can be selected and display the shop of the shop information of the first candidate left out of the second candidate so that it cannot be selected, respectively.

The information processing method further has a print order forming step of forming a print order for making a print ordering to the print management apparatus on the basis of print target data formed by

20045158-011502

an application.

5 The information processing method further has a  
printer information obtaining step of obtaining a  
printer information description file from the print  
management apparatus via the Internet, and in the print  
order forming step, the print order is formed on the  
basis of a print setting described in the obtained  
printer information description file.

10 The above objects are also accomplished by an  
information processing apparatus for realizing the  
above method, a print control program for allowing the  
above method to be realized by the information  
processing apparatus, and a memory medium which stores  
the print control program.

15 Other features and advantages of the present  
invention will be apparent from the following  
description taken in conjunction with the accompanying  
drawings, in which like reference characters designate  
the same or similar parts throughout the figures  
20 thereof.

#### BRIEF DESCRIPTION OF THE DRAWINGS

25 Fig. 1 is a system constructional diagram of a  
print service via the Internet according to the  
invention;

Fig. 2 is a system constructional diagram of a  
print system via the conventional Internet;

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Fig. 3 is a hardware constructional diagram of a client PC as an example of an information processing apparatus of the invention;

Fig. 4 is a hardware constructional diagram of a center server as an example of a print management apparatus of the invention;

Fig. 5 is a flowchart for explaining a print data forming process in the information processing apparatus of the invention;

Fig. 6 is a flowchart for explaining an uploading process of a print order in the information processing apparatus of the invention;

Fig. 7 is an explanatory diagram of a shop selection dialog at the time of formation of a print order which is displayed to a client;

Fig. 8 is a diagram showing an example of a data structure in a shop information file;

Fig. 9 is a flowchart for explaining a request receiving process in the print management apparatus of the invention;

Fig. 10 is a diagram showing an example of a user interface screen for describing a shop selection page and a print order decision page which are displayed on a Web browser of the client;

Fig. 11 is a flowchart for explaining a print ordering process in the print management apparatus of the invention;

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Fig. 12 is a diagram showing an example of a print order management table showing correspondence of a print order, a print order pass, and a display image pass;

5            Fig. 13 is a diagram showing an example of a user interface screen upon print order uploading which is displayed to the client;

10           Fig. 14 is a diagram showing an example of a user interface screen for explaining a using condition decision page which is displayed to the Web browser of the client;

Fig. 15 is a flowchart for explaining a shop information obtaining process in the information processing apparatus of the invention;

15           Fig. 16 is a flowchart for explaining a shop information transferring process in the print management apparatus of the invention; and

20           Fig. 17 is a diagram for explaining a memory map on a memory medium for storing various data processing programs which can be read out by the print system to which the information processing apparatus according to the invention can be applied.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

25           Fig. 1 is a system constructional diagram of a print service according to an embodiment of the invention. In the system, there exist: a client PC

10045158-011502

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(Personal Computer) (hereinafter, also referred to as a client) 100 as an embodiment of an information processing apparatus according to the invention which forms a print order; a center server 120 as an  
5 embodiment of a print management apparatus of the invention which receives the print order from each client; and a shop 140 as a print shop having at least one printer 141. The client 100 and center server 120 communicate with each other via the Internet. Since  
10 the client 100 corresponds to the information processing apparatus which can be connected to the Internet, a plurality of clients exist. Although the center server 120 and shop 140 communicate with each other via the Internet, the shop 140 can be also  
15 directly connected to the center server 120 via a cable or the like so that they can communicate with each other. In the embodiment, since the shop 140 corresponds to a print shop having the information processing apparatus which can be connected to the  
20 Internet and the printer 141 which can perform a print output according to a print request, it is assumed that a plurality of shops also exist.

According to the client 100 of the embodiment, the user executes an operation such as formation of a  
25 document or the like by using an arbitrary application 101 and forms a print request to a print service of the system. In the client PC 100, when a document serving

as a print target is formed by the application 101 and  
a print instruction in the present print service is  
issued from the user, a printer driver 102 serving as  
print data forming means for forming print data of the  
5 print service is activated. The printer driver 102  
forms a user interface screen for performing a print  
setting in accordance with attribute information in a  
printer information description file 103 describing  
attribute information (device characteristics (print  
10 resolution, duplex print, binding print, and finishing  
such as staple, punch, or the like), a media type which  
is supported, a paper size) of each printer 141 in the  
shop 140 which can provide the print service. The  
printer driver 102 forms print data 104 described by a  
15 postscript in accordance with the print setting which  
is designated by the user.

In the system of the network print service, the  
printer information description file 103 only for use  
by the driver is used. The printer information  
20 description file 103 is a file in which attributes of  
the printer have been stored. As a preferred example,  
for instance, the file 103 can be easily realized by  
using a PPD (PostScript Printer Description) file  
describing characteristics of a PostScript printer  
25 driver. The PostScript printer driver (hereinafter,  
referred to as a PS driver) converts the print data to  
print data described by the postscript (hereinafter,

such print data is referred to as PS data) on the basis of a draw command generated by the application via the OS (Operating System). The PPD file designates the attribute information for each printer. The PS driver  
5 forms PS data on the basis of the PPD file.

A print order application 105 serving as print order forming means is an application for forming a print order for the print data 104 formed by the printer driver 102. The print order application 105  
10 provides a GUI such as designation of a shop which can perform the printing operation, designation of a print option, or the like from a description of the postscript data file (print data) 104 formed by the printer driver 102 and a shop information file 106.  
15 The print order application 105 stores information regarding the designation of the set shop, designation of the print option, and the like into print set information 107, forms the print order including the print set information 107 and print data 104, activates  
20 a Web browser 108, and uploads the print order into the center server 120 via the Internet.

The shop information file 106 describes shop information (shop name and the like) and information of a print service (media type, A4 simplex print, A4  
25 duplex print, etc.) which can be used in the shop and exists with respect to each shop. The print set information 107 is an information file set on the

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client PC 100 with respect to data of the print order and describes an ID of a shop on the print destination side, a paper size for printing, a printer name, the number of copies, and the like.

5           As a Web browser 108 serving as Internet viewing means, a general Web browser installed in the client PC 100 can be used. A thumbnail image 123 and a preview image 124 which are formed by the center server 120 on the basis of the print order managed in the center  
10       server 120 are provided to the client 100 by the center server 120 and displayed to a window of the Web browser 108. The Web browser 108 functions as a browser which operates in the client PC 100. The Web browser 108 has functions for interpreting a file described by an HTML  
15       (HyperText Markup Language) obtained from an HTTP server 122 on the center server 120 via the Internet or an HTML file stored in the client PC 100 and displaying the interpreted file onto the client PC 100 (CRT 306, which will be explained hereinlater).

20           As for the HTML file which is obtained from the HTTP server 122, there are a case where it is a file stored on the center server 120 where the HTTP server 122 exists and a case where it is a file which is dynamically formed by a CGI (Common Gateway Interface)  
25       program which operates on the center server 120 via the HTTP server 122. For example, when the print order is issued to the center server 120, the thumbnail image is

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automatically formed in the center server 120 and stored as a file. By obtaining the thumbnail image file from the client 100 via the browser, the thumbnail image can be displayed by the browser 108 of the client 100. When a CGI program which operates on the center server 120 is activated by the client 100 through the HTTP server 122, the preview image is dynamically formed and can be displayed by the browser 108 of the client 100.

The center server 120 in the embodiment has functions for receiving the print order from the client 100 and distributing the print order to be printed to the designated shop 140 in accordance with a type of print order or a print request from the client 100.

The center server 120 receives the print order (including the print data file 104 and print set information 107) from the client 100. If the print order indicates the designation of a real-time print, a control is made so as to download it to the designated shop 140. Specifically speaking, if the designated shop 140 is always connected to the Internet, the print order is transmitted to the shop. If the designated shop 140 is the print shop which is dial-up connected to the Internet, a control is made in a manner such that the print order is stored into a shop folder which a transfer apparatus (transfer means) 125 has and when the center server 120 is accessed from the relevant

shop, the print order in the shop holder is transmitted.

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5 The center server 120 receives the attributes of the printer which the shop has and service information of the shop from the shop 140, updates the printer information description file 103 on the basis of the attributes of the printer, and updates and manages the shop information file 106 on the basis of the service information of the shop. In the embodiment, an FTP

10 server 121 which functions as printer information transmitting means and shop information transmitting means has functions for obtaining the printer information description file 103 and shop information file 106 mentioned above (reads out them from memory

15 means) and updating (transmitting) the printer information description file 103 and shop information file 106 to the client 100 which requests for obtaining those files via the Internet.

20 In the embodiment, the HTTP server 122 functioning as print order receiving means and display image forming means receives the print order including the print data file 104 and print set information 107 from the client 100 via the Internet and stores (uploads) it into the memory means. The HTTP server 122 also forms

25 display image information (in the embodiment, although it is described in an HTML format, the language format is not limited to HTML so long as the language can be

displayed by the Web browser) to be displayed by the Web browser 108 of the client 100 on the basis of the thumbnail image 123 which is provided from the center server 120 (having the function of the thumbnail image forming means) or the preview image 124 which is dynamically formed by the preview image forming means, and transmits (downloads) the display image information to the client 100.

Reference numeral 127 denotes print data converting means in the embodiment and converts the print data (postscript data in the embodiment) into a PDF (Portable Document Format) file 126. The print data converting means 127 can be also realized by GhostScript, Adobe Acrobat Distiller, or an application having a similar function. As a PDF file 126, any printer description language file in a format which does not depend on the printer in the shop can be used. In the following description, the PDF file 126 is called a printer description language file. The PDF file 126 and print set information 107 are collectively transferred as a print order 129 to the shop 140.

Reference numeral 128 denotes image converting means (hereinafter, also referred to as an image converter) having functions of thumbnail image forming means and preview image forming means in the embodiment and forms the thumbnail image 123 and preview image 124 from the PDF file 126. The image converter 128 can be

also realized by GhostScript, Adobe Acrobat Distiller, or an application having a similar function.

The thumbnail image 123 and preview image 124 are collectively called a display image 130 and are  
5 displayed as a display image of a print image onto the Web browser 108 in accordance with a request or used as a check of the print data for display of a print preview by the client.

The PDF file 126 and print set information 107 are  
10 transferred as a print order 129 to the shop 140 through the transfer apparatus 125. As mentioned above, the thumbnail image 123 is formed in accordance with the reception of the print order from the client 100 and stored into the memory means, which will be  
15 explained hereinlater. The preview image 124 is formed in accordance with the reception of a preview instruction from the client 100.

Reference numeral 125 denotes the transfer means (also referred to as a transfer apparatus) of the  
20 invention. The transfer means 125 receives the print set information 107 designated by the client from the HTTP server 122, receives the printer description language file 126 from the print data converting means 127, and manages the print order including the print  
25 set information 107 and printer description language file 126 every shop. When the printer description language file 126 is received, the transfer means 125

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transmits the print order to the shop which should  
print and output. The transfer means 125 has a  
function such that if the print order to instruct a  
stocking operation has been received, when a print  
5 request from the client 100 is received, the print  
order is stored into a box (folder) for the shop on the  
output destination side designated by the print order.  
As mentioned above, the print order is transmitted to  
the shop 140 which is always connected to the Internet.

10 To the shop which is dial-up connected, when an access  
from this shop is received, a shop folder which is  
specified in accordance with an ID of such a shop is  
searched, and the print order in the searched shop  
folder is transmitted to the shop.

15 The shop 140 as a print shop of the embodiment has  
at least one printer 141 in order to obtain a desired  
print output of the user in accordance with the print  
order transmitted from the center server 120. As  
mentioned above, one or more shops 140 as print shops  
20 can exist on the Internet.

One or more printers (in the embodiment, printers  
for the postscript) 141 are provided for each shop.  
The shop is a general denomination for the print shop  
and outputs the printer description language file 126  
25 (in the embodiment, PDF file) to the printer 141 in  
accordance with the print set information 107 included  
in the print order. The shop 140 transmits and

receives the data asynchronously with the transfer  
apparatus 125 of the center server 120 via the  
Internet. The shop 140 arbitrarily communicates with  
the center server 120 and downloads the data whose  
printing has been requested into the self shop.

The printer 141 prints the PDF file 126 in  
accordance with the description of the print set  
information 107. Since a print control of the printer  
141 is a well-known technique, its description is  
omitted.

(Block diagram of the client)

Fig. 3 is a block diagram showing a hardware  
construction of the client 100 as an information  
processing apparatus of the invention.

In Fig. 3, reference numeral 301 denotes a CPU for  
controlling the whole apparatus. The CPU 301 can  
provide various functions by executing arithmetic  
operating processes on the basis of control programs  
stored in the memory means. As memory means mentioned  
here, it is possible to use one of an RAM 302 as  
volatile internal memory means, an ROM 303 as non-  
volatile internal memory means, an HDD 309 as external  
memory means, and an FDD 310 as detachable memory  
means.

Reference numeral 302 denotes the RAM functioning  
as a main memory of the CPU 301 and a work area or a  
temporary refuge area of an executing program.

Reference numeral 303 denotes the ROM in which an operation processing procedure of the CPU 301 has been stored. The ROM 303 has: a program ROM in which a system program for controlling equipment of the print server and programs shown by processing flows, which will be explained hereinlater with reference to Figs. 5 and 6, have been recorded; and a data ROM in which information necessary for operating the system and the like have been stored.

Reference numeral 304 denotes a communicating unit for controlling a data transfer to/from the center server 120 via the Internet. The communication with the center server 120 can be made by connecting it with the Internet of the dial-up using a public line or by connecting it with a proxy server by the LAN by using a dedicated line.

Reference numeral 305 denotes a video RAM (VRAM) for developing an image which is displayed on the screen of the CRT 306 as a display unit showing an operating state of the system and controls the image display.

Reference numeral 307 denotes a keyboard controller (instruction input means) for controlling an input signal from an external input device such as a keyboard or the like. Reference numeral 308 denotes an external input device for receiving the operation. Generally, a keyboard or a pointing device (mouse or

the like) is shown.

Reference numeral 309 denotes the hard disk drive (HDD) as external memory means. The HDD 309 is used for storing a document file which is formed by using an application and a document editing apparatus. The printer driver 102 and the shop information 106 of the print shop and the printer information description file 103 which are obtained from the center server as will be explained hereinlater are also stored in the HDD 309.

Reference numeral 310 denotes the removable disk drive (FDD) such as a floppy disk or the like. The FDD 310 is used for reading out an application program, which will be explained hereinlater, from the medium.

Reference numeral 300 denotes an I/O bus (address bus, data bus, and control bus) for connecting the units mentioned above.

(Block diagram of the center server)

Fig. 4 is a block diagram showing a hardware construction of the center server as a print management apparatus of the invention.

In Fig. 4, reference numeral 401 denotes a CPU for controlling the whole apparatus. The CPU 401 can provide various functions by executing arithmetic operating processes on the basis of control programs stored in the memory means.

Reference numeral 402 denotes an RAM functioning

2004-158-01503  
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as a main memory of the CPU 401 and a work area or a temporary refuge area of an executing program.

Reference numeral 403 denotes an ROM in which an operation processing procedure of the CPU 401 has been stored. The ROM 403 has: a program ROM in which a system program for controlling equipment of the center server 120 and a program shown by a processing flow, which will be explained hereinlater with reference to Fig. 9, have been recorded; and a data ROM in which information necessary for operating the system and the like have been stored.

Reference numeral 404 denotes a communicating unit for performing a control of a data transfer to/from the shop 140, a data control for performing a data transfer between the client 100 and the present system via the Internet, and a diagnosis. Thus, edit information is received from the client 100 and transferred to the print server. The shop information 106 and printer information description file 103 are transmitted to each client.

Reference numeral 405 denotes a video RAM (VRAM) for developing an image which is displayed on the screen of a CRT 406 showing an operating state of the system and controls the image display.

Reference numeral 407 denotes a keyboard controller for controlling an input signal from an external input device such as a keyboard or the like.

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Reference numeral 408 denotes an external input device for receiving the operation. Generally, a keyboard or a pointing device (mouse or the like) is shown.

Reference numeral 409 denotes a hard disk drive (HDD). The HDD 409 is used for storing an HTTP server program and the print order 129 (PDF 126, print set information 107, etc.). Reference numeral 410 denotes the removable disk drive (FDD) such as a floppy disk or the like. The FDD 410 is used for reading out an application program, which will be explained hereinlater, from the medium. The printer information description file 103 and shop information 106 are also stored in the FDD 410. The print order which is received from the client 100 and the display image (thumbnail image) converted by the image converter 128 are also stored there.

Reference numeral 400 denotes an I/O bus (address bus, data bus, and control bus) for connecting the units mentioned above.

In the center server 120, the HTTP server 122 for transferring the fixed HTML file to the client PC and transferring the HTML file which was dynamically formed by the CGI program stored in the HDD 409 to the client PC in accordance with a request from the client 100 operates.

The HTTP server 122 is made operative by activating an HTTP server program stored on the HDD

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409. The HTTP server 122 in the operative state is developed onto the client 100 via the network so that the print order information can be viewed and selected on the client PC 100 and the print order can be executed via the network.

(Flowchart for the print order forming process)

Figs. 5 and 6 are flowcharts for explaining a control of a print starting process and a print ordering process in the client 100 according to the embodiment of the information processing apparatus of the invention. The control of the client 100 will be described hereinbelow with reference to those flowcharts. In each client 100, the CPU 301 executes the arithmetic operating processes on the basis of the control programs stored (installed) in the HDD 309 or program ROM 303 so that it can be executed, thereby enabling the control to be realized.

In the processes based on the flowchart shown in Fig. 5, the following print starting process is executed by the printer driver 102.

First, if a "print" menu is selected by the operator when the application 101 is activated on the OS of the client PC, the printer driver 102 is activated by the function of the OS and the print starting process is executed in STEP 501. In STEP 502, the printer driver 102 forms a user interface for allowing the user to designate the selection of the

printer type, the resolution, and the paper or the like  
with reference to the printer information description  
file 103, allows the user interface to be displayed,  
and executes a setting process by setting the print  
5 setting designated by the user as a print setting of  
the print job.

In subsequent STEP 503, the printer driver 102  
forms the print data 104 (in the embodiment, postscript  
data) by converting a draw function which is inputted  
10 from the application 101 via the OS on the basis of the  
print set value which has been set in STEP 502. The  
draw function which is inputted to the printer driver  
102 is a draw function which is formed by converting a  
first draw function (draw function which is defined by  
15 the OS: for example, a GDI function in Windows) which  
is supplied from the application to the drawing means  
of the OS into a second draw function (draw function  
which is defined by a DLL file of a device driver: for  
example, a DDI function in Windows) which can be  
20 interpreted by the device driver.

In STEP 504, the printer driver 102 discriminates  
the presence or absence of an error of the print  
setting and discriminates whether the formed postscript  
data is correct or not. If there is an error, the  
25 printer driver 102 forms error information in STEP 505.

If there is no error in STEP 504 or if the error  
information is formed in STEP 505, the printer driver

102 promotes so as to activate the print order application 105 via a monitor in subsequent STEP 506. The print order application 105 executes the print ordering process shown in subsequent Fig. 6.

5           According to the processes based on the flowchart shown in Fig. 6, the following print ordering process is executed by the print order application 105.

10           When the print order application 105 is activated via the monitor by an instruction from the printer driver 102, the print ordering process in STEP 600 is started. In STEP 601, the print order application 105 discriminates the presence or absence of the error information formed by the error process (STEP 505) of the printer driver described before. If there is an error, the processing routine advances to STEP 602. The print order application 105 notifies the user of the error information and the processing routine is finished.

15           If there is no error, in STEP 603, the print order application 105 is connected to the center server 120 through the Internet and inquires the center server 120 about whether the printer information description file 103 (in the embodiment, PPD file) has been updated or not. In the center server 120, in accordance with an inquiry sent from the client, the version of the printer information description file which the client has is compared with that of the latest printer

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information description file which the center server 120 has. If the printer information description file has been updated, a URL in which the printer information description file exists is added and the information is converted as a printer information description file into a file in a format which can be interpreted by the print order application 105, for example, the HTML format, and the client 100 is notified of the converted file.

10           If printer description file updating information showing that the printer information description file has been updated is notified by the center server 120, in STEP 604, the print order application 105 accesses the notified URL and downloads the latest printer information description file 103 via the FTP server 121 on the center server 120, thereby updating the printer information description file. When the printer information description file is updated, the print setting of the printer driver performed by the print starting process shown in the flowchart of Fig. 5 and the formed print data are invalidated. Therefore, the user is notified of an instruction to execute a print command again in STEP 605. The processing routine is finished in STEP 606.

25           If a message showing that the printer information description file is not updated is notified, the print order application 105 forms a user interface for

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selecting a printable shop (that is, a shop which can execute the printing operation) with reference to the shop information file 106 downloaded to the client 100 and allows the user interface to be displayed. By  
5 allowing the user to select the printable shop, a selecting instruction of the user is received.  
Although all shops which are defined by the shop information file 106 stored in the client are displayed, such a shop selecting user interface  
10 discriminates whether the print data formed by the printer driver 102 can be printed and outputted or not, and also displays a discrimination result. The discrimination about whether the print data can be printed and outputted or not can be realized by a  
15 method whereby the print order application 105 discriminates whether each shop has prepared the corresponding printer by the device dependent print setting (paper size, resolution, paper direction, ink kind, etc.) which is designated by the user by a  
20 property UI of the printer driver 102 or not with reference to the shop information 106. The shop selecting UI will be explained hereinlater with reference to Fig. 7.

When the shop is selected by the user in STEP 607,  
25 in STEP 608, the print order application 105 inquires the center server 120 about whether the shop information file 106 of the selected shop has been

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updated or not via the Internet. In the center server 120, in accordance with the inquiry sent from the client, the version of the shop information file which the client has is compared with that of the shop information file of the relevant shop which the center server has. If the information has been updated, the URL in which the shop information file exists and the file name are added and the information is converted as shop information updating information into a file in a format which can be interpreted by the print order application 105, for example, the HTML format, and the client 100 is notified of the converted file.

If the shop information updating information showing that the shop information file has been updated is notified by the center server 120, in STEP 609, the print order application 105 accesses the notified URL and downloads the latest shop information file via the FTP server 121 on the center server 120, thereby updating the shop information file. When the shop information file is updated, since there is a possibility that the printer and printer option have been changed, the shop selection in STEP 607 is again executed in order to discriminate whether the present print order can be executed or not.

If a message showing that the shop information file is not updated is notified, the print order application 105 forms the print set information file

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107 in STEP 610. As mentioned above, the ID of the shop on the print destination side which is specified from the shop information 106 corresponding to the shop which is selected by the user and the print paper size, printer name, the number of copies, and the like as a print setting selected by the user by the UI according to the printer information description file 103 are described in the print set information file 107.

In STEP 611, the print order application 105 forms a GUI (hereinafter, referred to as a user interface) shown in Fig. 13 on the basis of the information collected in each of the foregoing processing steps, sends GUI information to the OS, and develops it into the VRAM 305 by using a display driver (not shown), thereby allowing the CRT 306 serving as a display unit to display the user interface.

The user interface screen shown in Fig. 13 will now be described. Fig. 13 is a diagram showing an example of an operating screen of the print order application 105 which operates on the client PC 100. In the diagram, reference numeral 1301 denotes a page picture plane to instruct for uploading the print order formed by the print order application 105 into the center server 120. Reference numeral 1302 denotes a user ID (information for identifying the user: also referred to as user identification information) corresponding to the user name. The user ID is an ID

which has previously been issued from the center server to the client in order to specify the user who accessed the center server. This ID differs every user.

Reference numeral 1303 denotes information showing the shop which prints and outputs the print order. The shop name of the shop designated by the user selection in STEP 607 is displayed. Reference numeral 1304 denotes a name of the print data in the print order, and 1305 to 1309 indicate instruction items,

respectively. When the user presses a button corresponding to one of the instruction items, a process according to the print order application is executed on the client PC. Reference numeral 1305 denotes a "PROPERTY" button. When the user presses this button, details of the print order, for example, the number of pages, the number of copies, a paper size, a resolution, a designation of finishing, a kind of recording material (toner or ink), and the like are displayed by different windows, respectively.

Reference numeral 1306 denotes a "REAL-TIME ORDER" button. When the user presses this button, the present print order becomes the real-time print order, the print order is uploaded to the center server 120, and the print order is issued from the center server 120 to the shop. Reference numeral 1307 denotes an "UPLOAD" button. When the user presses this button, the print order is uploaded to the center server 120. Reference

numeral 1309 denotes a "CANCEL" button. When the user presses this button, a page screen for selecting "UPLOAD" of the print order is finished, and the screen is returned to the previous page screen. Reference numeral 1308 denotes a "PREVIEW" button. When the user presses this button, an HTML obtaining request for preview is issued from the Web browser 108 to the HTTP server 122. In the center server 120, as a result of the CGI program, display data in the HTML format including the preview image 124 is formed and transferred to the client 100. A preview image is displayed to the Web browser 108 of the client. Reference numeral 1309 denotes the "CANCEL" button. When the user presses this button, the present print ordering process is interrupted.

Therefore, in STEP 611, the print order application 105 discriminates whether the user has selected one of the "REAL-TIME ORDER", "UPLOAD", and "CANCEL" buttons in the user interface of Fig. 13. If it is determined that "REAL-TIME ORDER" has been selected, the print set information file 107 and print data 104 are set to the print order, a flag showing the real-time print order is set to the high level, and the print order is uploaded to the center server 120 via the Internet. If it is determined that "UPLOAD" has been selected, the print order application 105 uploads the print order as a normal print order into the center

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server 120 via the Internet. Simultaneously with the print order, the print order application 105 issues a request command for changing the uploaded print data 104 (in the embodiment, postscript data) to the PDF file 126 and an error check request command of the print order 129 to the center server 120. If it is determined that "CANCEL" has been selected, the processing routine is finished or returned to a shop selecting process (STEP 607).

10 In STEP 612, the print order application 105 inquires the center server 120 via the Internet about the presence or absence of a conversion error which is caused when the print data is converted into a printer description language file (as mentioned above, a file  
15 in a data format which does not depend on the shop; in the embodiment, PDF file) by the print data converting means 127, a conversion error which is caused when the printer description language file 126 is converted into image data (display image 130) by the image converter  
20 128 (image converting means), or an error of the print set information. If there is an error, in STEP 613, the print order application 105 notifies the user of the error information and finishes the processing routine. If there is no error, in STEP 614, the print  
25 order application 105 of the client receives a notice of an order ID (which will be explained hereinlater) to specify the print order from the center server 120,

executes a finishing process such as deletion or the like of the print order which has been uploaded to the center server 120 and became unnecessary, and finishes the processing routine.

5           Fig. 7 shows an example of a GUI (Graphical User Interface) for performing the shop selection in STEP 607 in the flowchart shown in Fig. 6. This GUI is formed by the print order application 105 and displayed on the CRT 306 as a display unit via the OS. Reference  
10          numeral 701 denotes a list area for displaying a list of the shop names which are displayed in accordance with the shop information file 106 existing in the client 100. As mentioned above, the list of the names of the shops which can output in accordance with the  
15          print setting by the printer driver is displayed. The user can select one of the shops in this list. A "x" mark is displayed in the list of the names of the shops which cannot print and output the present print data, or such a list is displayed in gray-out manner or the  
20          like, thereby disabling the user to erroneously select the unprintable shop.

          That is, the print order application 105 analyzes the print data formed by the printer driver 102 in STEP 601 and discriminates the name of the printer which can  
25          print the print data on the basis of the analyzed print setting (paper size, media type, finishing, etc.). The print order application 105 searches the shop having

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the printer which can print the print data from the shop information 106, distinguishes the shop which cannot print the print data from the shop which can print the print data, forms the input screen

5 information of the shop selection dialog (Fig. 7), and displays the dialog to the display unit via the OS, thereby promoting the user to select the shop which should be print-ordered. In Fig. 7, candidates for the shops based on the shop information downloaded to the  
10 client 100 are displayed so that they can be distinguished from candidates for the shop which can print, that is, the shop which cannot print cannot be selected. However, the print order application 105 can also form and display a shop selection dialog for  
15 allowing the print ordering destination to be selected from the shops which can print.

Reference numeral 702 denotes an "UPDATE LIST" button. When the user presses this button, the print order application 105 updates the shop information file  
20 106 regarding the shop selected from the shop list by downloading the latest shop information file 106 existing on the center server 120 from the center server 120. By clearly updating the shop information file 106 by the user during the shop selecting process,  
25 in STEP 608 in the flowchart shown in Fig. 6, the shop information file has already been updated, so that a discrimination result is always NO and it is avoided

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that the processing routine is returned to the shop selecting process. Reference numeral 703 denotes a "CANCEL" button, the shop which was selected recently is selected, and the shop selecting process is finished. Reference numeral 704 denotes a "SELECT" button. When the user presses this button, the print order application 105 selects the shop selected in the list area 701 of the shops as a shop which executes the printing process of the print order. The shop selecting process is finished.

Fig. 8 shows an example of the shop information file 106 held in the center server 120 or the shop information file 106 downloaded in the client 100, and both of them have the same data structure.

Reference numeral 801 denotes shop name information showing the name of the shop corresponding to the shop name displayed in the list area of the shops in Fig. 7. Reference numeral 802 denotes shop ID information for distinguishing the shop. The print order application 105 inserts the shop ID into the print set information. The center server 120 extracts the shop ID with reference to the print set information 107 in the print order 129 and searches the shop having the same shop ID by the shop information 106 held by itself, thereby making it possible to specify the shop to print and output the print order, in other words, the shop to request the printing.

Reference numeral 803 denotes version information of the shop information file. The version information 803 is used in the process for discriminating whether the print order application 105 should execute the updating process in STEP 608 in the flowchart shown in Fig. 6 or not. Reference numeral 804 denotes shop information in which information of the shop such as address, holiday, and the like of the shop has been stored. Reference numeral 805 denotes printer list information in which names of the printers which can be used in the shop have been stored. Reference numeral 806 denotes paper size list information in which a list of the paper sizes which can be selected by the printer shown in the printer list information 805 has been stored. Reference numeral 807 denotes printer option parameter information in which printer option information such as single/duplex print and the like and parameter information such as a print margin and the like of the printer which can be selected by the printer function have been stored. The paper size list information 806 and printer option parameter information 807 can be also described as information of each printer into the printer information description file 103. The error discriminating process of the printer driver 102 in STEP 504 in the flowchart shown in Fig. 5 is executed on the basis of either the information in the printer information description file

103 or the information in the shop information 106.  
(flowchart for the shop information obtaining process  
in the client)

5 A process for downloading the shop information  
from the center server 120 to the client 100 will now  
be described. According to the invention, the shop  
including the printer which is specified by the using  
conditions of the user is selected without downloading  
all of the shop information from the center server 120,  
10 and the shop information 106 corresponding to the  
selected shop is downloaded from the center server 120  
to the client 100.

Fig. 15 is a flowchart for the shop information  
obtaining process in the client 100. The client 100  
15 can realize the present control by a method whereby the  
CPU 301 executes the arithmetic operating processes on  
the basis of the control programs stored (installed) in  
the HDD 309 or program ROM 303 so that it can be  
executed.

20 According to this process, in the print order  
application 105, the user instructs an "OBTAIN SHOP  
INFORMATION" button (not shown), so that a process in  
STEP 1500 is started. In STEP 1501, the print order  
application 105 instructs the OS to activate the Web  
25 browser 108, thereby making the Web browser 108  
operative by the client 100. At this time, a URL is  
designated and the Web browser 108 accesses the

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designated URL (center server 120) via the Internet,  
obtains display information as a result of a CGI  
program, and allows a GUI shown in Fig. 14 to be  
displayed onto the display unit.

5           Fig. 14 is a screen diagram for explaining a user  
interface of a using condition input page of the shop  
which is displayed and operated by the Web browser 108  
on the client PC 100. By requesting the center server  
120 to execute the CGI program, the HTTP server 122 on  
10   the center server 120 transfers the data in the HTML  
format to the client PC as a result of the CGI program.  
By displaying the data in the HTML format as a page by  
the Web browser 108 on the client PC, the display and  
operation on the Web browser 108 are enabled. Although  
15   the embodiment has been described on the assumption of  
the data in the HTML format, there is no need to limit  
the data format to the HTML format, any data format can  
be used so long as it can be displayed by Internet  
viewing software (browser or the like).

20           In Fig. 14, reference numeral 1401 denotes a using  
condition input page of the shop which is displayed on  
the Web browser 108 of the client 100 on the basis of  
the image information which has been formed and  
transferred by the center server 120. Reference  
25   numerals 1402 to 1405 denote check box formats and 1406  
indicates a selection item of a pulldown menu format.  
That is, each of them is a using condition item.

Reference numeral 1402 denotes the check box for designating a paper size as a using condition. The user can designate one or more of a plurality of check boxes. The printer having at least one paper size which is designated here becomes the target printer.

Reference numeral 1403 denotes the check box for designating a media type as a using condition. The user can designate one or more of a plurality of check boxes. The printer having at least one media type which is designated here becomes the target printer.

Reference numeral 1404 denotes the check box for designating a page layout as a using condition. As for this item, the user checks only the item (function) which is certainly used by the print order. Only the printer having the page layout function which is designated here becomes the target printer.

Reference numeral 1405 denotes the check box for designating a finishing as a using condition. Also as for this item, the user checks only the item (function) which is certainly used by the print order. Only the printer having the finishing function which is designated here becomes the target printer.

Reference numeral 1406 denotes the pulldown menu for designating a region designation as a using condition. It is also possible that this item is not selected. When a region is designated, the shops existing in the designated region are excluded from

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selection targets.

Reference numeral 1407 denotes a "DOWNLOAD" button. When the user presses this button, the Web browser 108 issues a downloading request to the HTTP server 122 on the center server 120 via the Internet by using the using conditions designated by the user as an argument. Reference numeral 1408 denotes a "CANCEL" button. When the user presses this button, the processing routine is finished.

As mentioned above, the user interface screen of Fig. 14 is displayed onto the display unit. In STEP 1502, via the user interface, the Web browser 108 executes an inputting process of the using conditions which are designated by the user. In STEP 1503, the Web browser 108 discriminates whether the "DOWNLOAD" button 1407 has been pressed by the user or not. If it is determined that there is a downloading request, the processing routine advances to STEP 1504. If it is determined that there is not a downloading request, in other words, if it is decided that the "CANCEL" button 1408 has been pressed by the user, the processing routine is finished.

In STEP 1504, the Web browser 108 obtains the shop information file 106 as a first candidate searched on the basis of the foregoing using conditions from the center server 120. In STEP 1505, the printer information description file 103 is downloaded as

necessary. After completion of each downloading process, the shop information obtaining process in the client 100 is finished.

As mentioned above, the candidates are narrowed  
5 down by two stages in a manner such that the adapted shop information (shop of the first candidate) is preliminarily downloaded from the center server 120 in accordance with the using conditions which the user desires, further, as mentioned above, the shop  
10 information of the shop which can be print-ordered (shop of the second candidate) is specified from the downloaded shop information with reference to the print setting of the print data, and the shop selection screen information as shown in Fig. 7 is formed.  
15 Therefore, the user can easily select the correct print ordering destination.  
(Flowchart for the shop information transferring process in the center server)

Fig. 16 is a flowchart for explaining a control  
20 which is performed when a shop information transferring request including the using conditions from the client 100 in the center server 120 is received. The center server 120 can realize the present control by a method whereby the CPU 401 executes the arithmetic operating  
25 processes on the basis of the control programs stored (installed) in the HDD 409 or program ROM 403 so that it can be executed.

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In the client, the using condition items 1402 to 1406 on the Web browser 108 are set. In STEP 1503, when the "DOWNLOAD" button 1407 is pressed by the user, the shop information transferring process in STEP 1600 is started. In STEP 1601, a login process of the client is executed. The center server 120 discriminates whether a user ID and a password which are inputted from the client 100 via the Internet coincide with those in the user information file (stored in the HDD 409) managed by the center server 120 or not. If the inputted user ID and password are correct, the center server 120 permits an access to the client 100 which requested the access, a communication session is held, and STEP 1602 follows. In case of the user who accesses for the first time, a user registering process is executed. In the center server 120, the user ID which is issued to the user of the client and the password which is inputted from the user of the client are registered into the user information file and managed. A cookie information file describing the user ID and the like is held in the HDD 309 of the client PC 100.

In STEP 1602, the center server 120 executes an inputting process of a downloading request including the using conditions from the client 100 via the Internet. In STEP 1603, the center server 120 analyzes the using conditions included in the received

downloading request and searches the shop having the printer adapted to the using conditions from all of the shop information managed in the center server 120.

According to the searching process, as for the using

5 conditions 1402 and 1403, the printer having at least one or more corresponding items in each condition

becomes the target printer. As for the using

conditions 1404 and 1405, the printer which satisfies

those conditions becomes the target printer. The shop

10 information of the print shop having the target printer

is searched and decided as shop information of the

first candidate. If the region was designated in the

check box 1406, the shops are further narrowed down to

the shops existing in such a region. In the data

15 structure of the shop information file 106, an address

of the shop is included in the shop information 804 as

mentioned above in Fig. 8, so that it is possible to

discriminate whether the shop exists in the designated region or not.

20 If the first candidate of the shop information is

determined in STEP 1603, in STEP 1604, the FTP server

121 of the center server 120 transfers the shop

information of the first candidate to the client 100

via the Internet and the client 100 stores the

25 downloaded shop information into the pass of

predetermined memory means and manages it.

In STEP 1605, when the shop information file 106

is newly downloaded into the client 100, whether the printer information description file 103 of the printer which the downloaded shop information has is managed in the client 100 or not is inquired. When the obtaining request is received from the client 100, the FTP server 121 of the center server 120 transfers the printer information description file 103 to the client 100.

As mentioned above, the center server 120 searches the adapted shop on the basis of the using conditions received from the client 100 and transfers the shop information 106 of the searched shop to the client 100. Therefore, since the client 100 manages the shop information which the user desires, high use efficiency is obtained. Further, since there is no need to manage the unnecessary shop information, memory use efficiency is also improved.

(Flowchart for the control process in the center server)

Fig. 9 shows a flowchart for explaining a control which is executed when a request from the client 100 in the center server 120 is received. The control process is executed in the center server 120 in the case where the following requests are executed in the client 100: that is, the "HTML file obtaining request" of the Web browser 108; the "updating checking request for the printer information description file" which is performed in STEP 603 of the processing flow of the

client in Fig. 6; the "updating checking request for the shop information file" which is performed in STEP 608; and the "print data converting request" which is performed in STEP 611. The control of the center server 120 will be described hereinbelow with reference to the flowchart. The center server 120 can realize the present control by a method whereby the CPU 401 executes the arithmetic operating processes on the basis of the control programs stored (installed) in the HDD 409 or program ROM 403 so that it can be executed.

When the request from the client 100 is received, in STEP 901, the HTTP server 122 discriminates whether the request is the obtaining request for the HTML file or not. If it is determined that the request is the obtaining request for the HTML file, the processing routine advances to STEP 902. If it is determined that the request is not the obtaining request for the HTML file, the processing routine advances to STEP 903.

When accessed as a "PREVIEW" request (the "PREVIEW" button 1308 in Fig. 13 is instructed by the user) from the print order application 105 on the client PC 100 and when accessed as an obtaining request for the "shop selection page" or "print order decision page" from the Web browser 108, since the request is the obtaining request for the HTML file, the processing routine advances to STEP 902. The obtaining request for the HTML file also includes a request for displaying the

print order which has already been received (uploaded) from the client 100 which requested the access (in the case where a "PREVIEW" button 1015 in Fig. 10 is instructed by the user). If the updating checking request for the printer information description file or the updating checking request for the shop information file is issued from the print order application 105, since this request is a CGI program executing request, the processing routine advances to STEP 903.

In STEP 902, the HTTP server 122 transfers the HTML file corresponding to the URL of the HTML file included in the obtaining request for the HTML file to the client PC 100 on the requesting source side. If the obtaining request for the HTML file is a request for executing the CGI program, the HTTP server 122 on the center server 120 transfers the data in the HTML format to the client PC as a result of the CGI program. This process corresponds to the case of searching the print order from the client or the case of allowing the display image to be included in the HTML file.

In STEP 903, the HTTP server 122 discriminates whether the request from the print order application 105 is the updating checking request for the printer information description file 103 or not. If NO, the processing routine advances to STEP 905. If it is decided that the request is the updating checking request for the printer information description file

103, the processing routine advances to STEP 904. In  
STEP 904, the HTTP server 122 on the center server 120  
compares the version of the printer information  
description file (PPD file) designated to the executing  
5 request for the CGI program from the print order  
application 105 with that of the latest printer  
information description file which is updated on the  
center server 120, and transfers the HTML file which is  
outputted as a result to the client PC 100 on the  
10 requesting source side. If the printer information  
description file has been updated, a list of the URLs  
of the printer information description files to be  
downloaded is included in the HTML file which is  
transferred as a result.

15 In STEP 905, the HTTP server 122 discriminates  
whether the request from the print order application  
105 is the updating checking request for the shop  
information file 106 or not. If NO, the processing  
routine advances to STEP 907. If it is decided that  
20 the request is the updating checking request for the  
shop information file, the processing routine advances  
to STEP 906. In STEP 906, the HTTP server 122 on the  
center server 120 compares the version of the shop  
information file which has been designated to the  
25 executing request for the CGI program from the print  
order application 105 and which corresponds to the shop  
name or shop ID sent as an argument with that of the

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latest shop information file of the same shop which is updated on the center server 120, and transfers the HTML file which is outputted as a result to the client PC 100 on the requesting source side. If the shop information file has been updated, a list of the URLs of the shop information files to be downloaded is included in the HTML file which is transferred as a result.

In STEP 907, the HTTP server 122 discriminates whether the request from the print order application 105 is the print order uploading request, in other words, the print data converting request or not. If NO, the processing routine is finished. If it is decided that the request is the print data converting request, the processing routine advances to STEP 908. In STEP 908, the printer description language file (in the embodiment, PDF file) is formed from the print data (in the embodiment, postscript data) by the print data converting means 127. As mentioned above, the print data converting means 127 can be realized by GhostScript, Adobe Acrobat Distiller, or an application having a similar function. In STEP 909, a thumbnail image of low resolution and a display image of a preview image of high resolution are formed by the image converter 128 from the PDF file as a printer description language file. The image converter 128 can be also realized by GhostScript, Adobe Acrobat

Distiller, or an application having a similar function.

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5 In STEP 910, the center server 120 discriminates whether an error has been caused due to the conversion in STEP 908 and STEP 909 or not. If there is an error, the center server 120 adds error information to the HTML file which is outputted as a result and transfers the resultant HTML file to the client PC 100 on the requesting source side. If there is no error, the HTML file showing the fact that the converting process of the print data has correctly been performed is transferred to the client PC 100 on the requesting source side.

15 In STEP 911, whether the print order which was uploaded from the client is the "real-time print order" or the "normal print order" is discriminated by checking whether the real-time print flag has been set to the high level or not. If it is determined that the print order is the real-time print order, the processing routine advances to STEP 913. If it is determined that the print order is the normal print order, the processing routine advances to STEP 912.

25 In STEP 912, the print data converting means 127 of the center server 120 stores the printer description language file 126 formed in STEP 908 and the HTTP server 122 stores the print set information file 107 received from the client, as print order 129 for shop transfer, into a print order management table (Fig. 12)

in the transfer means 125 on the center server 120. At this time, the HTTP server of the center server 120 transfers an order ID, as additional information, for specifying the print order 129 to the client PC 100.

5 In the process in STEP 910, the thumbnail image 123 and preview image 124 are stored as a display image 130 into the print order management table (Fig. 12) on the center server 120, which will be explained hereinlater.

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10 If it is decided that the print order is the real-time print order, in STEP 913, the print data converting means 127 stores the printer description language file 126 formed in STEP 908 and the HTTP server 122 stores the print set information file 107 received from the client, as real-time print order 129  
15 for shop transfer, into the print order management table (Fig. 12) in the transfer means 125 on the center server 120. At this time, the thumbnail image 123 and preview image 124 are similarly stored into a print order correspondence table. As mentioned above, if the  
20 shop which should print and output the print order is a shop which is normally connected to the Internet, the transfer means 125 transmits the print order to the relevant shop and requests the printing, and if the  
25 shop which should print and output the print order is a shop which is dial-up connected to the Internet, the print order is stored into a box (folder) for the relevant shop, thereby managing the print order so that

it can be downloaded when there is an access from the relevant shop. The center server 120 manages information showing whether the shop is normally connected or dial-up connected to the Internet so that it is included in the shop information 106. When the real-time print order is uploaded or when a print order request for the normal print order is made, whether the print order 129 is transmitted and the print is requested or the print order is managed so that it can be downloaded into the box (folder) corresponding to the shop can be discriminated by referring to the shop information 106.

As mentioned above, in the center server 120, since the print order is converted into the printer description language file (in the embodiment, PDF file) as a format which does not depend on the printer in the shop and held, in the shop which should print and output the print order, it is sufficient that general application and printer driver which can handle the printer description language file (PDF file) are used. Since the apparatus of the invention easily operates in the present personal computer and the application and printer driver are software which can be easily obtained, there is an effect such that a load on the shop side is fairly reduced.

The thumbnail image 123 is used on an operation page (Fig. 10) of the print order which is displayed

and operated by the Web browser 108 of the client 100,  
which will be explained hereinlater. The preview image  
124 is used for preview drawing as an image for  
checking the print data.

5 (Explanatory diagram of the print ordering process)

Fig. 10 is a screen diagram for describing a user  
interface of the shop selection page and print order  
decision page (upon execution of the print order) which  
are displayed and operated by the Web browser 108 on  
10 the client PC 100. By requesting the center server 120  
to execute the CGI program as mentioned above, the HTTP  
server 122 on the center server 120 transfers the data  
in the HTML format to the client PC as a result of the  
CGI program. By displaying the data in the HTML format  
15 as a page by the Web browser 108 on the client PC, the  
display and operation can be performed on the Web  
browser 108. Although the embodiment has been  
described on the assumption that the data is the data  
in the HTML format, the data format is not limited to  
20 the HTML format but any data format can be used so long  
as it is a data format which can be displayed by  
Internet viewing software (browser or the like).

In Fig. 10, reference numeral 1001 denotes a shop  
selection page which is displayed on the Web browser  
25 108 of the client 100 on the basis of the image  
information which is formed and transferred by the  
center server 120 and is a page to select the shop for

executing the print order from the shop to which the  
print has been ordered. Reference numeral 1002 denotes  
a user ID corresponding to the user name. When the  
client 100 accesses the center server 120, the client  
5 100 accessed by the center server 120 is specified and  
embedded into the image information, thereby forming  
the user ID. To specify the client, the center server  
120 can allow the user to input the user ID when the  
access is requested, or it is also possible to prepare  
10 the cookie information in the client and automatically  
discriminate by using the cookie information.

Reference numerals 1003, 1004, and 1005 denote  
shop names, that is, the names of the shops on the  
print output destination side included in all of the  
15 print orders which have been uploaded at present by the  
client which is specified by the user ID and is being  
accessed. The center server 120 can form the image  
information by searching the print order managed in the  
transfer means 125 on the basis of the user ID. The  
20 user designates one of the shop names 1003 to 1005, so  
that a list request for the uploaded print orders is  
issued to the designated shop from the Web browser 108  
of the client 100 to the HTTP server 122 of the center  
server 120. The user ID and the shop ID are included  
25 in the list request. In correspondence to it, the  
center server 120 searches the print order uploaded by  
the user of the client 100 to the shop by using the

user ID and shop ID with reference to the print order management table (Fig. 12) and forms a search result as image information. The HTTP server 122 of the center server 120 outputs the image information to the Web browser 108 of the client. On the basis of the image information, the user interface screen which is displayed to the Web browser 108 of the client becomes as shown at 1010.

In Fig. 10, reference numeral 1010 denotes a print order decision page which is displayed on the Web browser 108 of the client 100 on the basis of the image information that is formed and transferred by the center server 120. It is a page for displaying a plurality of print data (uploaded to the center server 120) to which the print order has been made so far for the shop selected by the user on the shop selection page 1001 and selecting one or more print orders which the user wants to make the print order, thereby collectively executing the print orders. Reference numerals 1011 and 1012 denote all print orders uploaded to the center server with respect to the shop selected on the shop selection page 1001. The print orders of the number as many as the number of data whose printing has been ordered to the selected shop are displayed. Reference numeral 1013 denotes an "ORDER" button. When the user presses this button, the Web browser 108 of the client discriminates the print order which has been

designated and inputted (the check box is ON) by the user among the print orders 1011 and 1012 and transmits a print order instruction with respect to the designated print order to the HTTP server 122 of the center server 120 from the Web browser 108 via the Internet.

Reference numeral 1014 denotes a "CANCEL" button. When the user presses this button, the Web browser 108 interrupts the print ordering process. Reference numeral 1015 denotes the "PREVIEW" button for displaying the preview image corresponding to the print order whose check box is ON. When the user presses this button, an HTML obtaining request for previewing is issued from the Web browser 108 to the HTTP server 122. As a result of the CGI program, the center server 120 forms display data in the HTML format including the preview image 124 and transfers it to the client 100. The preview image is displayed to the Web browser 108 of the client.

Processes of the client will now be described. The client 100 executes processes such that in case of transmitting the print order to the center server 120, after the print order was transmitted to the center server 120, if the print order is not instantaneously made to the shop but the uploading instruction (1307 in Fig. 13) for allowing the print order to be managed into the print order management table is inputted, the

print order is uploaded to the center server 120 via the Internet, and thereafter, the print ordering request for one or more print orders which were designated by the user (designated on the print order decision page 1010 in Fig. 10) and should be print-ordered from the print orders uploaded in the center server 120 is transmitted to the center server 120 via the Internet.

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10 The client 100 also executes processes for accessing the center server 120 via the Internet and obtaining the order list of the print orders uploaded in the center server 120 (the list is obtained from the center server 120 in accordance with the designation of one of the shop names 1003 to 1005  
15 designated by the user on the shop selection page 1001 in Fig. 10).

20 The client 100 forms the print order to be transmitted to the center server 120 by using the printer driver 102 and print order application 105 on the basis of the print target data formed by the application 101.

25 The client 100 executes a process for obtaining the printer information description file 103 (PPD file) from the center server 120 via the Internet, thereby forming the print order on the basis of the print setting described in the obtained printer information description file.

The client 100 executes a process for obtaining the shop information file 106 from the center server 120 via the Internet, thereby forming the print order including the shop name based on the obtained shop information file by the print order application 105.

The client 100 also executes the following processes. That is, in case of transmitting the print order to the center server 120, the client is promoted to input an alternative instruction (print order transmission page 1301 in Fig. 13) of the print ordering instruction (1306 in Fig. 13) for issuing the print order as it is after the print order was transmitted to the center server 120 or the uploading instruction (1307 in Fig. 13) such that the print order is transmitted to the center server 120 and the print order is not issued and the print order is allowed to be managed in the print management table (Fig. 12), if the uploading instruction is inputted, the client 100 uploads the print order to the center server 120 via the Internet, and thereafter, the print ordering request for one or more print orders which were designated by the user (designated on the print order decision page 1010 in Fig. 10) and should be print-ordered from the print orders uploaded in the center server 120 is transmitted to the center server 120 via the Internet.

The client 100 executes processes such that the

using conditions which are inputted (using conditions 1402 to 1406 in Fig. 14) are transmitted to the center server 120 via the Internet, the shop information of the first candidate is obtained from the center server 120 in accordance with the using conditions, and the input screen information (Fig. 7) for promoting the selection of the shop which is allowed to print and output the print order is formed from the shop information of the first candidate. The shop information of the second candidate corresponding to the shop which can perform the printing process is specified from the shop information of the first candidate, and the input screen information is formed in consideration of the shop information of the second candidate. For example, as described in Fig. 7 of the embodiment, the input screen information is formed so as to display the shop of the shop information of the second candidate so that it can be selected and display the shop of the shop information of the first candidate left out of the second candidate so that it cannot be selected, respectively.

(flowchart for the print ordering process in the center server)

Fig. 11 is a flowchart for the print ordering process in the center server 120. A control for the print ordering process on the client PC 100 will be described hereinbelow with reference to the flowchart.

The center server 120 can realize the present control by a method whereby the CPU 401 executes the arithmetic operating processes on the basis of the control programs stored (installed) in the HDD 409 or program ROM 403 so that it can be executed.

In STEP 1101, since the user of the client 100 issues the print order to the center server 120, the center server 120 executes a log-in process from the client 100. The center server 120 discriminates whether the user ID and the password which are inputted from the client 100 via the Internet coincide with those in the user information file (stored in the HDD 409) managed by the center server 120 or not. If the inputted user ID and password are correct, the center server 120 permits an access to the client 100 which requested the access, a communication session is held, and STEP 1102 follows. In case of the user who accesses for the first time, the user registering process is executed. In the center server 120, the user ID which is issued to the user of the client and the password which is inputted from the user of the client are registered into the user information file and managed. A cookie information file describing the user ID and the like is held in the HDD 309 of the client PC 100.

In STEP 1102, the center server 120 receives the shop name selected by the user by the operation of the

pointing device or keyboard from the shop names 1003 to 1005 displayed in the shop selection page 1001 on the Web browser 108 of the client 100, specifies the shop which the user wants the print output, and selects the shop which should print and output from the shop information 106. When the shop is selected, STEP 1103 follows and the page of the Web browser 108 of the client PC 100 is changed to the print order decision page 1010.

In STEP 1103, the HTTP server 122 of the center server 120 searches the print order uploaded with respect to the shop selected by the client from the transfer means 125 on the basis of the user ID of the client which is being accessed and the shop selected in STEP 1102, forms the print order decision page 1010 in the HTML format to be displayed to the Web browser 108 of the client 100, and transfers it to the Web browser 108 of the client 100. In the print order decision page 1010 on the Web browser 108, when the user selects one or more of the displayed print orders 1011 and 1012 by operating the pointing device or keyboard, in accordance with the selected print order, the HTTP server 122 of the center server 120 receives the designation of the print order which the user desires and determines one or more print orders to which the print should be ordered. A table of Fig. 12 showing the correspondence among the user ID, shop ID, order

ID, print data 129, and display image 130 has been stored in the HDD 409 of the center server 120.

Fig. 12 shows an example of the print order management table for explaining the correspondence between the print order and the print data in the center server 120. From the user ID inputted to the center server 120 in STEP 1101 and the shop ID showing the shop specified and selected by the user instruction in STEP 1102, the center server 120 forms the print order decision page 1010 including all of the corresponding order IDs and displays them to the Web browser 108 of the client 100. At this time, the thumbnail image 123 of the display image 130 is obtained from the corresponding display image pass and the print order decision page 1010 including the thumbnail image is formed.

When the print order to be print-ordered is determined, the processing routine advances to STEP 1104 and step 1105. The center server 120 discriminates whether the inputting operation of either the ordering or the cancellation has been performed by pressing the "ORDER" button or "CANCEL" button on the print order decision page 1010 of the Web browser 108 or not by analyzing the information which is inputted from the client PC 100 via the Internet. If it is determined in STEP 1104 that the "ORDER" button has been pressed, STEP 1106 follows and the foregoing print

ordering process is executed. The processing routine is finished. If it is determined in STEP 1105 that the "CANCEL" button has been pressed, the print ordering process is finished.

5           In STEP 1106, the center server 120 obtains the print order 129 by the print order pass corresponding to the order ID decided on the print order decision page 1010 in Fig. 12, and the print order 129 is transferred to the shop 140 corresponding to the shop ID via the transfer apparatus 125 on the center server 120. When the print order 129 is transferred to the shop, on the shop 140, the printer description language file (in the embodiment, PDF data) 126 extracted from the print order in accordance with the print set information 107 is image-processed on the basis of the print set information, and the data is printed by the designated printer.

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          The processes of the center server 120 will now be summarized. The center server 120 executes the following processes. That is, the print order is received from the client 100 (YES in STEP 907 in Fig. 9), the received print order is managed into the print order management table (Fig. 12) in correspondence to the user ID of the client 100 without performing the print order processing to the shop (NO in STEP 911; corresponding to the process in STEP 912), the print order to be returned as an order list of the print

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order is searched from the print order managed in the  
print order management table (Fig. 12) with reference  
to the user ID of the client 100 in accordance with the  
list obtaining request from the client 100, and the  
5 image information (the print order decision page 1010  
in Fig. 10) of the order list including the searched  
print order is returned to the client 100 who  
requested.

The center server 120 manages the print order  
10 received from the client 100 into the print order  
management table (Fig. 12) in correspondence to the  
shop ID which is included in the print order and  
indicates the shop which should execute the printing  
process. At the time of the search responsive to the  
15 request from the client, the searching process is  
executed by using the shop ID.

The center server 120 receives the print ordering  
instruction to designate one or more print orders from  
the client 100 (process in STEP 1104 in Fig. 11) in  
20 accordance with the image information (the print order  
decision page 1010 in Fig. 10) of the order list  
returned to the client 100 and controls so as to  
transmit one or more print orders which is/are  
designated by the received print ordering instruction  
25 to the designated shop (process in STEP 1106).  
According to the above control, as mentioned above, the  
process of the transmitting method which differs in

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dependence on whether the designated shop is normally connected or dial-up connected to the Internet is controlled.

According to the embodiment as described above,  
5 the print orders uploaded by the client 100 have been stored on the center server 120, can be collectively ordered in the print ordering process, and are collectively made every shop. Therefore, delivering processes after completion of the print output can be  
10 collectively performed and a delivery charge can be saved.

Since the print order corresponding to the user ID is separately displayed every shop, even after the print order was uploaded to the center server 120, the  
15 user can easily recognize which print order has been updated to which shop.

In the embodiment, the client 100 downloads the shop information of the first candidate which satisfies the using conditions in accordance with the using  
20 conditions transmitted to the center server 120 via the Internet. Therefore, the client 100 does not need to download the shop information of all shops which can use the print service. The memory efficiency can be improved and the communication time and communication  
25 costs can be reduced. The shop information of the second candidate which can print and output the print order is specified from the downloaded shop information

of the first candidate in accordance with the print  
setting of the print order and displayed. Therefore,  
the user does not need to confirm all of the shops of  
the first candidate and examine the output destinations  
5 which can print one by one, so that using efficiency of  
the user is improved.

A construction of a data processing program which  
can be readout by a printing system to which the  
information processing apparatus according to the  
10 invention can be applied will now be described with  
reference to a memory map shown in Fig. 17. Fig. 17 is  
a diagram for explaining the memory map of a memory  
medium for storing various data processing programs  
which can be read out by a print system to which the  
15 information processing apparatus according to the  
invention can be applied.

Although not particularly shown, information to  
manage a group of programs which are stored into the  
memory medium, for example, version information,  
20 creator, and the like is also stored. There is also a  
case where information which depends on the OS or the  
like on the program reading side, for example, icons  
for identifying and displaying the program and the like  
are stored.

25 Further, data depending on the various programs  
has also been managed in the directory. There is also  
a case where a program to install the various programs

into a computer or, in the case where the installing  
program has been compressed, a program for decoding it  
or the like is also stored. Although the invention has  
been described on the assumption that the first to  
5 sixth data processing programs are stored in the same  
memory medium, the invention is not limited to such a  
construction. For example, it is also possible to  
construct the apparatus in a manner such that the first  
data processing program corresponding to the flowchart  
10 shown in Fig. 5, the second data processing program  
corresponding to the flowchart shown in Fig. 6, and the  
third data processing program corresponding to the  
flowchart shown in Fig. 15 are prepared as one memory  
medium which is used for the client PC, the fourth data  
15 processing program corresponding to the flowchart shown  
in Fig. 9, the fifth data processing program  
corresponding to the flowchart shown in Fig. 11, and  
the sixth data processing program corresponding to the  
flowchart shown in Fig. 16 are prepared as another  
20 memory medium which is used for the center server, and  
those programs are distributed.

The invention also incorporates a case where the  
programs of the software to realize the functions of  
the embodiments mentioned above (in the embodiments,  
25 programs corresponding to the flowcharts shown in Figs.  
5, 6, 9, 11, 15, and 16) are directly supplied to a  
system or an apparatus or supplied from a remote place,

and a computer of the system or apparatus reads out the supplied programs and executes them, so that those functions are accomplished. In this case, the invention is not limited to the form of the program but any form can be used so long as it has the function of the program.

Therefore, program codes themselves which are installed to the computer in order to realize the functions and processes of the present invention by the computer also realize the invention. That is, the invention also incorporates the computer program itself for allowing the computer to realize the functions and processes.

In such a case, the invention is not limited to the form of the program but any form can be used so long as it has the function of the program; that is, a form of object codes, a program which is executed by an interpreter, script data which is supplied to the OS, or the like can be used.

As a recording medium for supplying the program, for example, it is possible to use a floppy disk, a hard disk, an optical disk, a magnetooptic disk, an MO, a CD-ROM, a CD-R, a CD-RW, a magnetic tape, a non-volatile memory card, an ROM, a DVD (DVD-ROM, DVD-R), or the like.

Besides, as a supplying method of the program, the program can be supplied by a method whereby the

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computer is connected to a homepage of the Internet by using the browser of the client computer, the computer program itself of the invention is downloaded from the homepage or a compressed file including an automatic  
5 installing function is downloaded to a recording medium such as a hard disk or the like. The program of the invention can be also realized by a method whereby the program codes constructing the program of the invention are divided into a plurality of files and downloaded  
10 each file from a different homepage. That is, a WWW server for downloading the program files to realize the functions and processes of the invention by the computer to a plurality of users is also incorporated in the embodiments of the invention.

15 The program of the invention can be also realized by a method whereby the program of the invention is encrypted and stored into a memory medium such as a CD-ROM or the like and distributed to the users, the users who can satisfy predetermined conditions are allowed to  
20 download key information for decoding the encryption from the homepage via the Internet, and the encrypted program is executed by using the key information and installed into a computer.

25 In addition to a method whereby the functions of the embodiments mentioned above are realized by a method whereby a computer executes the read-out program, the functions of the embodiments mentioned

above can be realized by a method whereby the OS or the like which operates on the computer executes a part or all of the actual processes on the basis of instructions of the programs, and the functions are realized by those processes.

Further, the invention also incorporates a case where the program read out from the recording medium is written into a memory equipped for a function expanding board inserted into a computer or a function expanding unit connected to a computer, and thereafter, a CPU or the like equipped for the function expanding board or function expanding unit executes a part or all of the actual processes on the basis of instructions of the programs, and the functions of the embodiments mentioned above are realized by those processes.

As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited to the specific embodiments thereof except as defined in the appended claims.

As described above, according to the information processing apparatus of the invention downloads the shop information of the first candidate which satisfies the using conditions in accordance with the using conditions transmitted to the center server via the Internet. Therefore, there is no need to download the

shop information of all of the shops which can use the print service. An effect such that the memory efficiency can be improved and the communication time and communication costs can be reduced is obtained.

- 5           The shop information of the second candidate which can print and output the print order is specified from the downloaded shop information of the first candidate in accordance with the print setting of the print order and displayed. Therefore, the user does not need to
- 10          confirm all of the shops of the first candidate and examine the output destinations which can print one by one, so that using efficiency of the user is improved.

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